CLAIMS

1. A process of synthesis of a family of microporous materials that are comprised under the name ITQ-16, with an X-ray diffraction pattern like the one present in Table 1 that comprises diffraction peaks at 2θ angles of 6.9°, 7.6° and 9.6° and wherein the relative intensity of the peaks at 6.9° and 9.6° with respect to the intensity at the peak at 7.6° complies with the ratio $1_{9.6}°/1_{7.6}°$ being larger than zero and less than ∞, characterized in that the synthesis is carried out using hydroxide anions as a mineralizing agent, without introducing fluorides as mineralizing agent, and in the presence of organic compounds such as structure directing agents.

2. A process of synthesis of a family of microporous materials according to claim 1, characterized in that organic cations selected from the group comprised of

- organic cations of the tetraalkylammonium type with a general formula $(R1R2R3R4N)^{+}$, wherein R1, R2, R3 and R4 may be alkyl or aromatic chains with 1 to 16 carbon atoms, that may or may not form cycles on the nitrogen atoms, and
- organic polycations of general formula $R_mN_x((CH_2)_n)_p$ wherein x varies between 2 and 12, n refers to the number of carbon atoms that form some of the alkyl chains bridge between two contiguously nitrogen atoms and varies between 1 and 6, p refers to number of alkyl chains bridge existing between nitrogen atoms and varies between 2 and 24, R represents alkyl or aryl groups bonded to a single nitrogen atom (N) containing between 1 and 12 carbon atoms and m varies between 0 and 36

are used as structure directing agents.

3. A process of synthesis of a family of microporous materials according to claim 1, characterized in that it comprises heating to a temperature between 80°C and 250°C, at an initial pH comprised between 14 and 9, a reaction mixture that contains at least:

a SiO_2 source,

a GeO_2 source,

an organic cation and

H_2O.

4. A process of synthesis of a family of microporous materials according to claim 3, characterized in that the reaction mixture is heated to a temperature between 130°C and 175°C.

5. A process of synthesis of a family of microporous materials according to claim 3, characterized in that the pH of the initial reaction mixture is between 13 and 10.

6. A process of synthesis of a family of microporous materials according to claim 3, characterized in that the reaction mixture also contains a trivalent cation source.

7. A process of synthesis of a family of microporous materials according to claim 6, characterized in that the trivalent cation is selected from among Al, B, Fe and Cr.

8. A process of synthesis of a family of microporous materials according to claim 3, characterized in that the reaction mixture also contains a tetravalent cation source.

9. A process of synthesis of a family of microporous materials according to claim 8, characterized in that the tetravalent cation is selected from among Ti, Sn and V.

10. A process of synthesis of a family of microporous materials according to claim 1, characterized in that the organic cation is any one of the ones indicated in figure 4.

11. A process of synthesis of a family of microporous materials according to claim 1, characterized in that the organic cation used as a structure directing agent is BD^+, and in that the reaction mixture composition in terms of molar ratios is within the following intervals:

$BD^+/(SiO_2{}^+GeO_2)$ = between 3 and 0.01, $H_2O/(SiO_2{}^+GeO_2)$ = between 1000 and 0.5,

$GeO_2/(SiO_2{}^+GeO_2)$, defined as g; = between 0.8 and 0.005.

12. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the molar ratio $BD^+/(Si0_2+GeO_2)$ is between 1 and 0.03.

13. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the molar ratio $H_2O/(Si0_2+GeO_2)$ is between 100 and 2.

14. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the molar ratio $GeO_{2,}(Si0_2+GeO_2)$ is between 0.5 and 0.032.

15. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the molar ratio $GeO_2/(Si0_2+GeO_2)$ is between 0.333 and 0.0625.

16. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the reaction mixture also comprises at least one trivalent element and the molar ratio (Si+Ge)/X wherein X represents said element in a trivalent oxidation state, is comprised between 5 and ∞.

17. A process of synthesis of a family of microporous materials according to claim 16, characterized in that the molar ratio (Si+Ge)/X is larger than 15.

18. A process of synthesis of a family of microporous materials according to claim 16, characterized in that the molar ratio (Si+Ge)/X is larger than 20.

19. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the reaction mixture also comprises at least one tetravalent element, T, other than Ge and Si.

20. A process of synthesis of a family of microporous materials according to claim 19, characterized in that the molar ratio SiO_2+GeO_2/TO_2 is between 10 and ∞.

21. A process of synthesis of a family of microporous materials according to claim 19, characterized in that the tetravalent element, T, is selected from among Ti, Sn and V.

22. A process of synthesis of a family of microporous materials according to claim 19, characterized in that the molar ratio SiO_2+GeO_2/TO_2 in the reaction mixture is larger than 20.

23. A process of synthesis of a family of microporous materials according to claim 11, characterized in that the reaction mixture also comprises an alkaline or alkaline earth cation, M^{+n}.

24. A process of synthesis of a family of microporous materials according to claim 23, characterized in that the alkaline or alkaline earth cation is selected from among Na, Ba, K, Ca and Mg.

25. A process of synthesis of a family of microporous materials according to claim 23, characterized in that the molar ratio $M^{+n}/SiO_2 + GeO_2$ is between 2 and 0.

26. A process of synthesis of a family of microporous materials according to claim 23, characterized in that the molar ratio M^{+n}/SiO_2+GeO_2 is between 1 and 0.

27. A process of synthesis of a family of microporous materials according to claim 23, characterized in that the molar ratio $M^{+2}/SiO_2 + GeO_2$ is between 0.5 and 0.

28. A process of synthesis of a family of microporous materials according to claim 3, characterized in that it also comprises a subsequent step of roasting at a temperature higher than 450°C.

29. A process of synthesis of a family of microporous materials according to claim 28, characterized in that in the roasting step, a roasted and anhydrous material of an empirical formula:

$$x(MXO_2):fTO_2:gGeO_2(1-g)SiO_2$$

wherein

- T represents at least one tetravalent element, T, other than Ge and Si,
- X represents at least one element in a trivalent oxidation state,
- M represents at least one alkaline or alkaline earth cation,
- the molar ratio $GeO_2/(SiO_2+GeO_2)$, defined as g; is between 0.8 and 0.005,
- the molar ratio (Si+Ge)/X is between 5 and ∞, and
- the molar ratio SiO_2+GeO_2/TO_2 is between 10 and ∞.

30. Microporous material prepared according to the process of claim 29, characterized in that in the roasted and anhydrous state it has the empirical formula:

$$x(MXO_2):tTO_2:gGeO_2(1-g)SiO_2$$

wherein

- T represents at least one tetravalent element, T, other than Ge and Si,
- X represents at least one element in a trivalent oxidation state,
- M represents at least one alkaline or alkaline earth cation,
- the molar ratio $GeO_2/(SiO_2+GeO_2)$, defined as g; is between 0.8 and 0.005,
- the molar ratio (Si+Ge)/X is between 5 and ∞, and
- the molar ratio SiO_2+GeO_2/TO_2 is between 10 and ∞.

31. In a process selected among

- a cracking process,
- a hydrocracking process
- a hydroisomerization process of olefins
- a isomerization process of light paraffins
- a dewaxing or isodewaxing process of paraffins, the improvement comprising conducting said process with catalyst components comprising the materials of claim 1.

32. In a hydrocracking process selected from among gentle hydrocracking of hydrocarbides and gentle hydrocracking of functionaliozed hydrocarbides, the improvement comprising conducting said process with catalyst components comprising the materials of claim 1.

33. In a process selected among

- an alkylation process selected from among alkylation of olefins or alcohols, alkylation of isoparaffins with olefins and alkylation of aromatics or aromatics substituted with olelfins or alcohols;
- an Oppenauer oxidation process,
- a Meerwein-Pondorf-Verley reduction process,
- amoxydation of cyclohexannone, and
- acylation of substituted aromatic compounds using acids, acid or anhydrous chlorides of organic acids as acylating agents, the improvement comprising conducting said process with catalysts comprising the materials of claim 1.

34. In the alkylation process of benzene propylene, the improvement comprising conducting said process with catalysts comprising the materials of claim 1.

35. In a selective oxidation process of organic compounds using H_2O_2 or organic peroxides or hydroperoxides as oxidizing agents, wherein said oxidation process is conducted with materials prepared according to claim 1 and containing Ti, V or Sn.

36. Use of the materials prepared according to any one of claim 1, that comprise Sn in Bayer-Villiger oxidation processes.

37. In a process selected between epoxydation of olefins, oxidation of alkane, oxidation of alcohols and oxidation of thioethers to sulfoxides and sulfones, using organic or inorganic hydroperoxide, wherein materials prepared according to claim 1 and that comprise Ti are used as a catalyst.

38. In a process for the elimination of organic vapors (OVC), wherein the materials prepared accordint to claim 1 are used as components of catalysts.